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BUFFALO BRANCH HYDROGRAPHIC OFFICE.

In accordance with a clause in the last naval appropriation bill the hydrographic office of the U. S. Navy Department opened a branch office at Buffalo on Nov. 22, 1897. This office will be located in room 1344, Guaranty building. Ensign C. T. Jewell, U. S. N., who will be in charge of the office, is getting things in order for the work. The complete set of furniture, charts and reference books will not arrive for a few days yet.

Beginning on Monday next the office will be open daily from 9 a. m. to 4 p. m., and all interested in the navigation of the lakes or ocean are invited to call. Mr. Jewell hopes that masters and others will visit the office frequently during the winter so that when next season opens they will be acquainted with both the workings of the office and with its personnel.

The hydrographic office at Buffalo will be modeled on the plan of those already established at Cleveland and Chicago, which are so much appreciated by lake vesselmen. The Navy Department hopes by the establishment of this new office to bring to all vessel owners, agents and masters, a complete knowledge of the various bulletins of important information which it is constantly supplying to those interested. When the Buffalo office is in working order there will be on hand a complete library of nautical charts and sailing directions of the world for inspection by the public. Information affecting nautical charts is regularly secured from all sources. Nautical inquiries will be promptly investigated and answered. Barometers and other instruments will be compared with standard instruments upon application. All services are free. As soon as the equipment can be obtained a time ball will be dropped from a staff on the roof of the Guaranty building daily (Sunday excepted) at noon, eastern standard time. The ball will be dropped by electricity from the standard clock in the naval observatory at Washington.

Mr. Jewell wishes to impress upon masters, owners and others interested in nautical matters the advantage to be gained by themselves and by the traveling public and shipping corporations generally, if the masters and their mates make themselves familiar with the workings of the hydrographic office, the object of which is only to render navigation more safe and sure. He is confident that if any interested person will take the time to visit him at the office in the Guaranty building they will see the advantage to be gained by a hearty co-operation with the hydrographic office in its work of spreading desirable information.

DEEP SEA SALVAGE.

Successful diving operations were undertaken this year in connection with the foundering of the steamship Skyro, which took place in the April of 1891, while the vessel was bound from Carthagena to London with a valuable cargo, including a large number of silver bars to the amount of £9,000. The Skyro had made a good passage, until, on approaching Cape Finisterre, she met with foggy weather, and missing her course, struck on the Mexiddo Reef, but passing over it, went down within the short space of 20 minutes, and in over 30 fathoms of water, at a distance of about two miles from the coast. The depth of water in which she sank is worthy of notice, as enhancing to a considerable degree the credit of the diver's success.

An expedition was fitted out during the same year for the purpose of recovering the treasure, and proceeded to the place where she had gone down, but all attempts at reaching her proved of no avail, and she remained, with her valuable cargo, untouched until 1895. In that year, however, Mr. J. K. Moffat, of Bilbao, entered into negotiations for her recovery with Lloyd's underwriters, and having fitted out a second expedition, spent some time over the operations, until, bad weather intervening, he was compelled to desist for a time. Resuming in the following year, he made another determined effort with more powerful diving apparatus, with the result that 59 of the bars of silver were brought to the surface. The working depth for the diver was never less than 28½ fathoms, and even that depth was frequently exceeded. To obtain the bars it was found necessary to blow away the deck with dynamite, which was only accomplished with the greatest difficulty, owing to the state of the weather. Work was again compulsorily suspended in October, but on being resumed this summer, has eventually resulted in the whole of the silver bars being regained.

The dangerous nature of the undertaking will be fully realized when the exposed position in which the wreck lay can be recalled about nine miles south of Cape Finisterre, the strong currents prevalent on that part of the Spanish coast, and the rough weather that had to be contended with during the greater period of the salvage operations. In addition to these natural obstacles, the diver had to resort to the use of dynamite to clear away a great many obstacles that lay in his way, in order to effect an entrance into the cabin where the silver bars were stowed, and then he found the deck collapsed to within 18 inches of the cabin floor on the starboard side of the silver. The diver reports that there is now no part of the wreck, fore and aft, left standing higher than himself, with the exception of the engines and main boilers, it being in fact, nothing more than a lump of old iron.

TRANSFERS OF VESSEL PROPERTY.

Following are among the recent transfers of vessel property recorded at the Milwaukee custom office: Schooner Glen Cuyler—Luke Wild, administrator, to Ben and Henry Jacobson, of Green Bay, the whole, $580. Schooner Norman—Henry Harkins and James Canfield to Charles W. Streckenbach and Louis C. Schilling, the whole, $250. Schooner Active E. Christensen, of Manitowoc, to Fordel Hogenson, the whole, $300. Schooner William Aldrich—Harry Johnson, of Sturgeon Bay, to Frank Krones, of Milwaukee, the whole, $400. Scow A. R. Kellogg—E. E. Ayer, of Chicago, to Sam Neff, of Milwaukee, the whole, $1,250. Steamer William Rudolph—E. N. Hatch, of St. Joseph, to Joseph and Gustave Huette, of Sheboygan, the whole, $4,200. Schooner Minnehaha—Theodore Plathner to Charles Morbeck, of Milwaukee, the whole, $200. Tug Steward Edward—Fred Broeger to Ferdinand Grade, of Two Rivers, one-half, $300.

THE BASIN OF THE AMAZON.

In a report recently made to the Chamber of Commerce of Bordeaux, M. Viener, who had just returned from a special mission to Brazil on the part of France, gave some important details concerning the extension of commercial enterprises in Brazil and the progress of navigation, especially in the vast basin of the Amazon. M. Viener remained an entire year in Brazil, traveling through the principal states and visiting not less than 27 markets, whose principal centers in the north are Para, Manaos and Iquitos, and in the south Santos, Bahio and Rio. His valuation of the actual commerce of Brazil amounts to 2,500,000,000 francs, of which 1,200,000,000 are exports. The exports consist chiefly of coffee, India rubber and cacao.

Further details in regard to the navigation of the Amazon are furnished by M. Carlos de Cisneros, whose paper on the subject was published in the bulletin of the Society of Commercial Geography of Bordeaux. M. Cisneros states as the result of his investigations, that no part of the earth possesses a fluvial system comparable to that of Brazil. Although this system combines exceptional advantages, it is capable of very great improvement, which will probably take place in the next century, dependent upon the increase of population and the development of sufficient resources.

The navigation of the Amazon is ever increasing and will develop necessarily with population, colonization, and the improvement of the countries which this great river traverses. It has 1,100 branches or tributaries. At present it is not a question of utilizing such a net work of streams; that would be impossible. Before everything else, it is important that populating the region should commence; that man should go there, acclimatize himself and remain. This acclimatization has as yet been tried by very few except Italians, Portuguese and Spaniards. As for other Europeans, they have confined themselves entirely to the cities.

For several years past explorations have multiplied, both in Peru and Brazil, with the purpose of learning all the river courses and their navigable conditions, some from a scientific point of view and others with commercial outlooks, principally in order to favor the cultivation and export of India rubber, for which each year new markets are established.

MICHIGAN FISHERY LAWS.

In Chase S. Osborn, relator, vs. Roscoe L. Corbett, Circuit Judge at Traverse City, respondent, a mandamus brought by the attorney-general, to show cause why an injunction issued by respondent restraining the game warden from taking and destroying fish nets unlawfully used, under act 151, public acts of 1897, involving the constitutionality of the fish laws should not be dissolved, the mandamus prayed for was granted by the Supreme Court this morning.

The court handed down a voluminous opinion, in which the constitutionality of the law is thoroughly gone into and fully sustained. It says the circuit judge had no authority to issue the injunction upon the facts of the case.

The closed season for whitefish and lake trout under the new law begins October 30th and ends December 15th—the spawning period. Before the closed season began, however, John O'Neil, a Charlevoix county fisherman, representing his brother fishermen, went before Judge Corbett at Traverse City, and got an injunction restraining the game warden or his deputies from seizing and destroying his nets. Attorney-General Maynard at once went to Traverse City and moved that the injunction be dissolved. Judge Corbett refused to entertain his motion and on Monday, November 1st, Mr. Maynard went before the Supreme Court and secured a mandamus compelling Judge Corbett to show cause why the injunction issued by him should not be dissolved. The case was argued a week ago. It was expected that the case would drag along in the Supreme Court until after the close season was at an end, when the case would be withdrawn, and the fishermen would be ready to go through the same proceedings another year.

Attorney-General Maynard's prompt action, and the equally prompt work of the court in rendering a decision, however, completely upset their calculations.

A GRAIN SHORTAGE CLAIM.

Details of the suit filed by the Vega Steamship Co. against the Consolidated Elevator Co., in which damages were asked in the sum of $682.83 for an alleged shortage in a shipment of grain, comes from Duluth.

The complaint says that the plaintiff company entered into a contract with the Spencer-Moore Co. to carry a cargo of grain down the lakes, and on October 20 loaded the grain on the ship Vega from one of the elevators of the defendant company, where it was stored. It is alleged that the elevator company informed the officers of the steamship company that the cargo amounted to 97,587 bushels, but on unloading the cargo at its destination it was discovered that there were but 96,525 bushels, a shortage of 1,062 bushels.

It is alleged that frequent demands have been made on the elevator company for the value of the wheat, but that the demands have been disregarded, and judgment is asked against the elevator company at the rate of 64¼ cents per bushel, which is said to have been the market price of wheat at the time of the alleged shortage.

NEWS AROUND THE LAKES.

BUFFALO.

Special Correspondence to The Marine Record.

The steamer Pensacola, of the Gulf Transit Co., Galveston, has recently been equipped with a propeller wheel fourteen feet in diameter from H. G. Trout & Co.'s King Iron Works, Buffalo, N. Y. This is the largest solid wheel ever made in Buffalo, most wheels being of the sectional kind, the blades being cast separately and bolted to the hub; but with the excellence of manufacture characteristic of all Trout wheels there is no doubt that this big fellow will prove A1 in every respect and be satisfactory to the owners of the line.

Messrs. Dunbar & Sullivan, the contractors for the building of the enormous dredge with which Messrs. Hughes Bros. & Bangs will do the excavating for the new breakwater, have nearly completed their work and the largest dredge that has ever been seen on the lakes will be ready the latter part of next week. Some of the finest machinery that has ever been put in an affair of this kind has been made by the Osgood Dredge Co. of Albany, and has all been put in place. The bucket, which is also one of the largest ever constructed, will lift ten cubic yards of stuff at each plunge. All the work of supervision has fallen to Mr. Harry Dunbar, of the firm mentioned, and he has been assisted in the putting in of the machinery by Mr. E. H. Howe, of the Osgood Co. Mr. Howe was here this week putting the finishing touches on this remarkable piece of engineering.

The announcement that the Welland canal will close within a week or so, say Dec. 1st, is, so far, the most significant tidings that navigation for the season of 1897 soon is to cease. One by one the boats are seeking winter quarters and, in spite of the fact that nearly all of the boats seem to be able to get cargoes, it now is only a matter of days, perhaps, before boats will lay up.

Word has been received from Erie to the effect that Capt. C. J. Raymond, on the tug Fred King, stopped at the wreck of the Idaho, but saw nothing but a small amount of wreckage. According to reports, Capt. Raymond reported that he saw two spars of a vessel sticking above water about a mile and a half nearer to Long Point than is the Idaho, and further in shore. However, there is not the least likelihood that another vessel sank in the same storm as did the Idaho, as no reports have been received of missing vessels, and over two weeks have passed since the Idaho foundered.

The Canadian cruiser Petrel, is making it warm for American fishermen caught setting their nets in waters where they do not belong. She chased several fishing tugs last week and overtook a Vermillion crew that had been operating in Dominion waters. The American fishermen's nets and catch were confiscated and the fishermen warned that if caught again their boat would also be confiscated for illegal fishing.

Mrs. Donald Gillies, of this port, has made the announcement that she will pay a reward of $50 to the person who will recover the body of Capt. Gillies, late master of the Idaho, which foundered off Long Point.

The purchasing department of the Northern Steamship Co., which has been at Duluth this season, will follow the rest of the general offices to Buffalo this winter.

Capt. Dorrington, of the schooner Nassau, who was arrested on the charge of a sailor named McLaughlin, pleaded not guilty when arraigned before the United States Commissioner to-day, and was released on $2,500 bond. McLaughlin is very weak, and was hardly able to appear in court.

Maytham's tug line has contracted with the Union Dry-Dock Co. to build a steel tug 90 feet long, 23 feet beam, and 12 feet deep. She is to be driven by a triple-expansion engine, steam to be furnished by two tubular boilers having 100 feet of heating surface, and allowed 250 pounds of steam. This is a new venture in tug building on the lakes. The tug will be much more powerful than any now in harbor service on fresh water. This is demanded in a measure by the increased size of lake shipping.

DETROIT.

Special Correspondence to The Marine Record.

The steamer Frank E. Kirby has been laid up for the winter.

With a full load of freight and a number of passengers the City of Alpena left on her last trip to Mackinac Monday night.

Messrs. Parker and Millen went to Chicago this week to look after the Iron Duke, which stranded on the rocks off Hyde Park last Saturday.

The steamer City of Marquette will lay up here this winter, and extensive repairs including a new boiler will be given her.

After completing repairs at the Detroit dry-dock, the Lehigh Valley liner Clyde reloaded her cargo of coal and left for Chicago.

The steamers Lackawanna and John Plankinton were both in trouble at the mouth of the river this week. The Lackawanna fetched up on Ballard Reef and had to be beached as her forward compartment filled. As if this trouble was not enough the Mariska, while attempting to run alongside the dock at Amherstburg, collided with or rather ran into the stern of the grounded steamer and caused about $1,000 more damage. Having grounded in eighteen feet of water, cargo was lightered and steam pumps placed aboard the Lackawanna, and she proceeded on to Buffalo. The Plankinton got off easier and but little damage is anticipated. The steamer V. Swain had to discharge a portion of her cargo owing to a bad ieak, but her own pumps kept her free.

The steamer Iroquois, which struck at Colchester last Saturday was placed in the Detroit dry-dock, where several new planks were put in.

The Michigan Car Ferry Co. have established their offices in the Parker & Millen building at the foot of Griswold street.

The Yantic left Montreal on Monday for Ogdensburg, thence to this port. She is being towed on six pontoons by tugs. Her entire keel, twelve feet of her bow, and all her spars have been removed.

The schooner Columbian was seized Tuesday morning by Deputy United States Marshal Bermatz, of Port Huron, for an unpaid tug bill of the Thompson Towing Co. The schooner was tied up at Port Huron pending the settlement of the bill.

While the steamer Katahdin was in Marine City Tuesday afternoon a levy was made on her by a United States marshal from Port Huron for wages due the engineer. The steamer was detained a few hours while settlement was being made.

Captain Shoemaker, of the revenue marine service, has issued orders to the cutters on the Great Lakes to go into winter quarters Nov. 30th. The Fessenden will lay up at Detroit, the Calumet at Chicago and the Gresham at Milwaukee.

Ed. Peck, superintendent of the Detroit Dry-Dock Co., completed a fast piece of repair work on the steamer Iroquois this week. The steamer struck off Colchester last Saturday and was placed in the Detroit dock Sunday with a cargo of 2,500 tons of coal. She cleared Tuesday at noon.

Twelve carloads of material arrived at the Wheeler shipyard this week for the new Rockefeller boats, and work will commence at once. Several more cars of material are expected.

A dispatch from Washington says that General Spaulding has informed the collector of customs at this port to grant special privileges as ferry boats to certain car barges which it is desired to use between Sandusky and Detroit. These barges have tracks laid upon them for the transportation of cars, and will be towed from port to port. Their papers, however, will be the same as those provided for ferry boats. These boats are the new Michigan & Ohio Ferry line between Sandusky and Detroit.

CHICAGO.

Special Correspondence to The Marine Record.

The steamer Iron Duke, Capt. N. Miner, laden with coal for this port, ran on Hyde Park reef Saturday morning. The Independent Tug line tugs went to her assistance and endeavored to pull her off the reef, but without success. Then the O. S. Richardson Fueling Co.'s spring heel derrick No. 2 and two scows were towed out to the steamer and after about 300 tons of her cargo had been lightered she was pulled off by the tugs at 10:30 p. m. Saturday, and arrived in port at midnight. She is leaking and will go into dry-dock when unloaded.

The steamer Italia was in the Chicago Ship Building Co.'s dry-dock and received considerable new bottom plank and bottom calking.

The steamer Onoko, coal laden, was held on the river Wednesday afternoon with her stern in the draw of Dearborn street bridge so that the bridge could not be closed and traffic was delayed more than an hour. The Onoko met the steamer Alva coming down the river and when the steamers approached the bridge there was only one draw they could use. The Alva backed out but the Onoko held to its place.

There is a very large fleet of coal laden vessels arrived and arriving.

There was a fire in the forecastle of the schooner York State, Capt. Julius Baker, in the river Wednesday morning. The fire was put out by the fire department. Capt. Barker and pipeman John Kavanaugh, of the fire department, were overcome by the smoke and had to be carried from the schooner. The fire loss was not great and was covered by insurance.

Capt. John Prindiville chartered the steamer E. M. Peck and consort Churchill for corn to Fairport at 1½ cents; the steamer Lansing for corn to Buffalo at 1½ cents.

Tom Sullivan, the well-known vessel supply man, has added a fine meat market to his grocery store.

Capt. A. L. Fitch chartered the steamer Hiram Sibley for corn to Fairport at 1½ cents.

H. W. Cook chartered the steamer Nipigon for clipped oats to Sarnia at 1¼ cents; the barge Melbourne for corn to Sarnia at 1⅜ cents; the steamer Westover for lumber from Cheboygan to Chicago at $1.37½ per M.; the barges Bliss and Parana for lumber from Manistique to Chicago at $1.25; the steamer I. N. Foster and schooner Evaline for lumber from Menominee to Chicago at $1.12½ per M. feet.

Capt. J. W. Millen and A. A. Parker, of Detroit, were here Monday looking after their damaged steamer Iron Duke.

Among the boats laid up in Milwaukee last week were the Amboy, Veronica, schooners Leo, Annie O. Hansen, Ebenezer, Seaman, Thomas Howland, Mary Cook, Austin; the barges Sidney Neff, Harold, Grace Grummond, Red Wing, Sandiego and the steamer John Oades.

CLEVELAND.

Special Correspondence to The Marine Record.

The hydrographer in charge of the local office, Lieut. Stafford, U. S. N., has sent out a notice giving the location of the foundered schooner Groton, as follows: The wreck lies nine and one-half miles SW. by W. from Port Stanley light-house, and one and one-half miles SE. from Talbot (Plumb) Point; in 40 feet of water, with 25 feet of water over her deck. Both masts are out of water, but the fore topmast is gone. This information came from the keeper of the Port Stanley life-saving station.

Orders have been received by the American Ship Windlass Co., Providence, R. I., for seven more of their Shaw & Spiegel steam towing machines for vessels to be built on the Great Lakes this winter, which will make 29 machines altogether in service on the lakes, besides which orders are promised for a number of others. The Bessemer Steel Co.'s steamers are all equipped with them.

The steamer Roman was floated out of the Cleveland dry-dock Wednesday night, after receiving extensive repairs. The work, which was carried out by the Globe Iron Works Co., besides being a thorough good job, was completed in a very short time. In noting the placing of the Roman in dry-dock last week, the Norman was mentioned, this, of course, was a printers' error.

The steamer M. T. Green is docked in the Ship Owners' dry-dock for survey and necessary repairs. The schooner Thomas Quayle is also docked for minor repairs.

The Minnesota Steamship Co. has led the way of the best class of shipowners, by duly recognizing the skill of the master and crew of the steamer Mariposa, in going alongside of a spar in mid-lake and rescuing two men in a gale of wind, the acknowledgment is mentioned elsewhere in this issue of the RECORD.

Deputy Marshal Cutler, on Tuesday, libeled the schooner Surprise, owned by L. Retz, of Cleveland, for $56 wages due Viola Grotham, the cook. The libel was filed in Sheboygan.

Sunday trips have been discontinued by the D. & C. Co. on its Detroit route.

Next Monday, the steamer City of Buffalo will leave Cleveland on her last trip of the season.

Colonel Jared A. Smith, Corps of Engineers, U. S. A., engineer in charge of harbor improvements, has purchased for the department the steamer Visitor. The Visitor will be used by the engineer and his assistants in making soundings and other harbor work, in place of the Swansea, a Toledo boat, which has been under charter for some time. The Visitor will be turned over to the government at Toledo, next week. She was built in Detroit in 1892, is of 70.11 gross tonnage, 80 feet in length and 20 feet beam. She has powerful triple-expansion engines, and steams about fifteen miles an hour.

The steel steamer Samuel Mitchell, of which Capt. Thomas Wilford is master, cleared for Sheboygan, this trip. While at the custom house Capt. Wilford said that he has sailed thirty-seven years and never took a boat into Sheboygan.

There are but few vessels going into winter quarters yet, although several severe gales have passed over the lakes during the past week.

Of the 12,000,000 tons of ore to be moved by lake this season, the two Minnesota ranges contribute nearly one-half or about 5,508,320 tons. Shipments from the Mesaba and Vermillion ranges—estimating the few cargoes yet to be moved—are about 1,500,000 tons in excess of last year's shipments.

It is now proposed to ask Congress to bestow on Capt. Frank Root, of the steamer Mariposa, a gold medal in recognition of his humane and daring rescue of the two survivors of the Idaho wreck. Some such action is the only fitting recognition for Capt. Root's magnificent seamanship in saving life without damaging his vessel.

FLOTSAM, JETSAM AND LAGAN.

The barge Algeria, consort of the steamer Rappahannock, will go into winter quarters at Milwaukee.

New York state canals, including the Erie, will close at 12 o'clock noon on Wednesday, Dec. 1, 1897.

The annual meeting of the American Society of Naval Engineers will be held in Washington, D. C., January 7 and 8, 1898.

F. W. Wheeler & Co., of Bay City, will send the tug Boscobel to Lake Ontario to meet the Yantic. The tug will meet the warship Friday morning.

Statistics just prepared show that American square-rigged vessels are rapidly disappearing. In 1871 there were 2,466, while to-day there are only 456, a decrease of 2,010. The decrease in the number of ships was 607, barks 739 and brigs 664.

While entering the coal dock slip at Duluth on Saturday night the whaleback barge, Sagamore, ran against the stern of the steel schooner, Manda, and broke several frames and plates. Earlier in day the Manda, while entering the slip, struck the dock and pushed twenty piles out of place.

Mrs. Ida Moore Lachmund is captain of the Mississippi river towboat Robert Dodds. She lives in Clinton, Ia. Her boat is engaged in the freight trade and tows great rafts of logs down the river to the sawmills where they are in demand. She handles $500,000 worth of logs every year.

Crimsonbeak—Here's one strange thing I've noticed.

Yeast—And what's that?

Crimsonbeak—Why, a boy is christened with water and afterward takes to wine, while a ship is christened with wine and afterward takes to water.—Yonkers Statesman.

A year ago at this time the tugs were breaking the ice for vessels in the Duluth-Superior harbor. Vesselmen at the head of the lakes are of the opinion that navigation will close later than usual this year. There is no ice in the harbor, but along the shore in many places it is firm enough to support boy skaters.

The Port Arthur Dock & Channel Co. has decided to build a dry-dock which will accommodate vessels 500 feet long, at Port Arthur, Tex. The Globe Iron Works Co., at Cleveland, are also figuring on a large steel pontoon dock, in addition to their present graving dock, situated at some distance from the shipyards but nearer their machine, engine and boiler works.

The three sets of screw engines for the Jena, building at Brest, have been ordered by the French Minister of marine. These engines are to indicate up to 15,500 h. p. and will cost £139,200. They will be supplied with steam by Belleville boilers, which are to be constructed at St. Denis. The order has to be out of hand before December 31, 1898.

As an example of what American shipbuilders can do, the following data is of much interest: Contract awarded June 28, 1887, keel laid July 3, first frames erected July 31, ship launched October 23. As the steamer will be ready for service early in December, it is believed that this record has never been beaten, and constitutes a fact to which the Wm. Cramp's Sons can point with much pride. This vessel has been built under the most careful inspection, and in accordance with the requirements and under the rules of the American Shipmasters' Association, carrying their highest rating for twenty years.

Here is a fish story from Fort Tampa, Fla.: Some fishermen who recently caught a shark noticed that his stomach was considerably distended, while the lower portion of his body and tail were quite thin. These facts excited the curiosity of the fishermen and they decided to dissect it. Upon opening his stomach a small pork barrel, with one head knocked out, was found. The mouth of the barrel was pointing upward toward the fish's throat, and was literally filled with dead fish, but they could not be digested, hence the shark was literally starving to death, yet he had a barrel of fish in his stomach.

The Marinette Iron Works probably have given more steady employment to West Duluth labor than any other local industry. Other mills have found it necessary to close while the Prescott works, as is generally known, have continued to operate, paying steady wages and turning out a class of work that is second to none in the country, and in fact equal to any in the world, if orders from New Zealand and Australia, passing by English and American markets to the West Duluth company can be taken as a gauge of the class of work done. The Marinette works were established in West Duluth in 1890 by the Marinette Iron Co., which also has a large plant in operation at Marinette, Wis.

The White Star line's gigantic twin-screw steamer, Cymric, which was launched Oct. 12th, by Harland & Wolff, of Belfast, Ireland, has a gross tonnage of 12,300 and displacement 23,000 tons. She is, therefore, the largest cargo steamer afloat. Her dimensions are as follows: Length, 600 ft.; breadth, 64 ft.; depth, 42 ft. The Cymric will have quadruple expansion engines of Harland & Wolff's design, with boilers working up to 200 lbs. pressure. In their successful conveyance of live stock the steamers of the White Star line have gained an excellent reputation, and it is intended that besides her large cargo and dead meat capacity the Cymric shall be fitted to carry 830 head of cattle on the upper and middle decks, also with permanent stalls of the latest kind for a large number of horses on the upper deck.

Commander Richardson Glover, U. S. N., who was appointed chief of the office of naval intelligence this month, is classed as one of the progressive officers of the navy. He entered the navy in 1863 and is credited with nineteen years' sea service in various quarters of the globe. In 1883-84 he superintended the building of the steamer Carlile Patterson, in this city, and upon that steamer's completion took her to Alaska, and as chief of party coast geodetic survey organized the system of survey that has since been carried on in S. E. Alaska. In 1891-92-93 he held the important position of hydrographer of the navy. Was also a member of the fithian board on the re-organization of the personnel of the navy. His latest sea service has been as executive of the U. S. cruiser Chicago on the European station in 1894-95, and commander of the Dolphin in 1896-97.

The New York Marine Journal says the Iowa Iron Works, of Dubuque, will have completed by November 27th a steel hull steamer for the government. When this vessel, which is called the Vulcan, is finished, it will make the forty-first iron or steel hull craft that has been built by that company, some of them being sea-going. Dubuque is 1,692 miles from the Gulf of Mexico, and it speaks pretty well for the enterprise of the Iowa Iron Works that they should be able to successfully compete with shipyards near the sea in building vessels to float on the briny deep. The Vulcan is to be used as a tender to the dredge boats on the lower Mississippi. She is 80 feet in length, 17 feet beam, with 3 feet 9 inches depth of hold, and will draw 24 inches when her boilers are filled and fuel and stores are all aboard. Her cylinders are 8¼ inches, with 48-inch stroke.

Cassier's Magazine of Illustrated Engineering has in its December number the following articles: Electric Light from City Refuse. An Economical Disposal of Wastes. With twelve illustrations. By Nelson W. Perry, E. M. Hydraulic Cranes; Their Development and Present Status. With nineteen illustrations. By Robert Gordon Blaine. Some Interesting Applications of Hydraulic Power. Hydraulic Aids in a Large Engineering Establishment. With twelve illustrations. By George W. Dickie. The American System of Rope Transmission. Examples of Modern Installations and Details. With seventeen illustrations. By R. D. O. Smith.

THE LARGE TUG WILLIAM H. BROWN.

The large tug William H. Brown, built at the yard of F. W. Wheeler & Co., West Bay City, Mich., and now on her way to New Orleans, La., is the largest tug ever built on the lakes. The exact dimensions of hull and particulars of equipment of the Brown have through the courtesy of her builders been furnished to the MARINE RECORD as follows: Length over all, 156 feet 1 inch. keel, 143 feet 4 inches, beam molded, 28 feet, depth of hold, 17 feet.

Engine, triple-expansion, diameter of cylinders, 20, 32½ and 55 inches by 36 inches stroke.

Boilers, two Scotch type, 12 feet 8 inches diameter by 12 feet long.

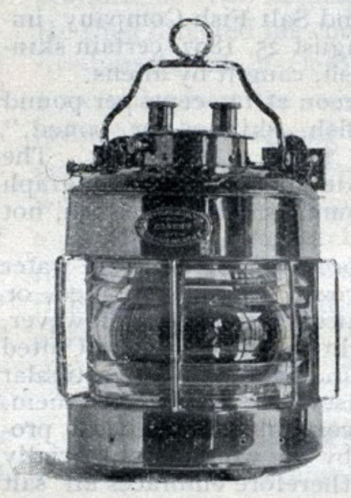
Equipment, she is fitted with steam windlass, capstan and towing machine furnished by the American Ship Windlass Co., Providence, R. I. The Williamson Bros., Philadelphia, steam steerer and electric lighting plant and search light of the General Electric Co.'s make. She is also supplied with all the most modern appliances for a vessel of her class. The cabins are elegantly furnished in hardwood, the owner's room and engine room being furnished in mahogany.

The tug Robert W. Wilmot, also built at the yards of F. W. Wheeler & Co., and which left. here on October 18th, is of the same style and description and equipped in the same manner as the William H. Brown, with the exception that she is 11 feet shorter. According to a telegram received from Norfolk, Va., the Wilmot had reached that port with the sad intelligence that Mr. W. G. Wilmot, who left here with the tug had died at sea at 8 o'clock on Monday morning.

ELECTRIC MARINE SIGNALS.

(ILLUSTRATED.)

The signal lamp here shown represents the masthead light of the latest style of electrical marine signals and which together with the side and anchor lights, constitutes one of the finest sets of vessel signals that are made. It is manufactured by Wm. Porter's Sons, of 271 Pearl St., New York. The lamp is fitted with cut and polished imported Fresnel lens, photometrically correct and of the greatest power to be obtained for the purpose for which it is used. At the top of the lamp is fitted a heavy cast brass cap so arranged as to turn or revolve, and thereby admit of the throwing into focus of either or both electric light bulbs with which it is provided. Stuffing boxes with rubber glands are attached to the cap to prevent moisture from entering the lamp and the electric wires lead through the stuffing box and into brass tubes which support the electric lamp sockets. By this device, the lights are applicable to the system of wiring the running lights in connection with an electric indicator or tell-tale. Should one incandescent lamp go out, a relief lamp is set aglow in the lamp and the fact is indicated both audibly and visibly by the tell-tale in the pilot house until the trouble is adjusted. The inside of these lanterns is lined with corrugated metal nickled which makes a strong reflector and when ordered with doors, cast door frames are used, the doors fitting snugly against rubber packing and held tightly in place by thumb screws. Lamps of this pattern are in use by all the U. S. Navy ships and cruisers while the American liners St. Louis and St. Paul and steamships of the Red Star line; and also, the new steamship Creole of the Cromwell line use the same style of lamps but with American Fresnel lens. The lamps are thoroughly well made and strictly up to date.



IRON ORE SHIPMENTS.

Relative to the shipments of iron ore for this season, a Houghton special says: The total ore shipments by Lake Superior mines to November 1st, were in excess of 11,000,000 gross tons, or about one million tons in excess of the shipments of any previous year. The November and December shipments by water and the all-rail shipments to local furnaces will bring the total for 1897 to perhaps 12,250,000 tons, or two million tons in excess of the output of any previous season.

The tonnage of this single year will be greater than the combined output of all the iron mines of Lake Superior from the time that ore was first found, in 1844, until January 1, 1879. The 1898 production will reach at least, 15,000,000 gross tons and may exceed that amount.

EASTERN FREIGHT REPORT.

In their weekly freight report to THE RECORD Messrs. Funch, Edye & Co., New York, state that the inquiry for tonnage for grain cargoes, especially in smaller vessels suitable for business for Cork f. o., has continued pressing, and is obviously curtailed by the gradually developing scarcity of such tonnage only. Boats sure to afford December shipment can be placed at 4s. to Cork f. o., and January tonnage at 3s. 7½d. @ 3s. 6d.; February at 3s. 6d., or probably 1½d better, if privilege of Denmark at same figure for one, 1½d. more for second port is yielded. So far the inquiry has not extended to March. Large boats ready for cargo in November or early December, can secure from 1½d. @ 3d. for picked ports beyond such steamers for latter part of December, or early January loading. For latter part of January the inquiry for this tonnage is not pressing, but a limited business is doing at 3s. for grain, 2s. 7½d. on oats guaranteed; for February a fair amount of business has been done for picked ports at 2s. 10½d. and 2s. and 6d.—heavy grain and oats respectively—privilege of full cargo heavy grain at 3s., and this at the moment represents full market rate. The advance in oats during the last few days bids fair to seriously interfere with owners' demand for part cargo of this cereal, unless advance is met in European prices. Cotton charters show a slight improvement in rates conceded from Atlantic cotton ports, and charterers more inclined to agree to a moderate advance. The demand from the Gulf continues good and freights firm. For other trades, except for some boats to load on the berth, with general cargo privilege, the inquiry is not active. Case oil and timber freights from the gulf ports continue neglected.

There is no essential change as regards sail tonnage, which still remains scarce, both for spot and vessel to arrive. Rates, consequently, continue very firm.

SKILL AND SEAMANSHIP RECOGNIZED.

Mr. Samuel Mather, president of the Minnesota Steamship Co., Cleveland, has presented Capt. Frank D. Root, master of the steamer Mariposa, with a beautiful watch, for the bravery and seamanship displayed in rescuing the two survivors of the steamer Idaho, November 6. The other members of the crew were not overlooked by Mr. Mather, as the following letter from Mr. Mather to Capt. Root will show:

"I wish to express to you, and through you to all of your brave crew, my sincere appreciation of the unusually skillful seamanship, coolness, nerve and bravery displayed by you all in rescuing the two poor survivors of the Idaho, and to say further that notwithstanding the risk thereby involved to the safety of the steamer, your act has the hearty commendation of this company and of myself. Not alone in this instance was the excellent discipline existing on the Mariposa evidenced, but also to a marked degree at the time of the collision with the Selwyn Eddy, and in some recognition of it I wish you to give your first mate and your chief engineer an extra month's salary each, and to all the other members of your crew an extra half month's salary each, for which draft is enclosed herewith, and as for yourself, will you please call at our office upon your arrival down and receive in person from us a testimonial of our regard and esteem. Wishing you all continued good fortune in any other such attempts to save life or avert disaster if similar occasions again arise." The captain was presented with a handsome watch suitably engraved.

Capt. Root has simply covered himself with glory in this his latest commendable act, although he was favorably mentioned to the underwriters on the occasion of the collision mentioned above, and they were told that it was solely through the skill, discretion and discipline then exercised on board the vessel that the Mariposa had not become a total loss instead of the comparatively minor outlay which it cost to repair her. From this showing, there is little doubt but that Messrs. Johnson, Higgins & Co., general agents, New York, will, or has, made such representations to their underwriters as to insure due recognition of the valuable services of the crew of the Mariposa on that occasion, but of course it takes some time for foreign underwriters to get together; then again big bodies move slowly.

WINTER SERVICE ON LAKE MICHIGAN.

The steamer Alice Stafford will run between Manistique and Frankfort, Mich., during the winter months, in connection with the Minneapolis, St. Paul, and Sault Ste. Marie and Toledo & Ann Arbor railways.

The Crosby Transportation Co. has chartered the steamer Mary H. Boyce for the winter route between Milwaukee and Grand Haven, service to begin about Dec. 20.

Two of the Lake Michigan and Lake Superior Transportation Co.'s steamers are considered about as good as secured for the St. Joseph and Chicago and St. Joseph and Milwaukee routes. They will connect with the Vandalia and Big Four systems. They are the J. Gould and either the City of Traverse or City of Duluth.

The steamer J. C. Ford has been chartered for the winter by the Toledo & Ann Arbor Railway Co. She will run between Kewaunee and Frankfort.

CUSTOMS DECISIONS RELATING TO FISHING.

FRESH-WATER FISH CAUGHT BY CITIZENS OF THE UNITED STATES.

Before the U. S. General Appraisers at New York, October 22, 1897.

In the matter of the protests, 33505b, etc., of A. Booth Packing Co., against the decision of the collector of customs at Duluth, Minn., as to the rate and amount of duties chargeable on certain merchandise, imported per the vessels and entered on the dates named in annexed schedule.

OPINION BY LUNT, GENERAL APPRAISER.

We find—

1. That the A. Booth Packing Co. imported into the port of Duluth, on the several days specified in the schedule annexed and since the 24th day of July, 1897, certain fresh-water fish, packed in ice, upon which duty was assessed at one-fourth of 1 cent per pound under paragraph 259 of the tariff act of 1897. The importer claims free entry under paragraph 555 as fish—fresh, frozen, or packed in ice—caught in the Great Lakes or other fresh waters by citizens of the United States.

2. Upon the evidence we find that the fish in question were actually caught in the waters of Lake Superior in the vicinity of Port Arthur within the jurisdiction of the Dominion of Canada, by Canadian fishermen and British subjects, fishing under Canadian licenses. That the laws under the Dominion of Canada do not permit unlicensed persons to fish with nets in the waters of the Great Lakes and other fresh waters in the northwest, within the jurisdiction of the Dominion, and provide that only British subjects shall be licensed. That said fishermen were furnished with outfits, such as boats and nets, by Mr. J. Brimson, a Canadian, doing business at Port Arthur, Canada, for and in behalf of The A. Booth Packing Co., under the name and style of the Port Arthur Fish Co., and were paid, some by monthly wages and others according to the quantity of fish caught by them.

3. That The A. Booth Packing Co. is a private business or manufacturing corporation organized under the general laws of the state of Illinois, having its principal office in Chicago, in said state, its stockholders being citizens of the United States.

The vital question in dispute in these cases is, were the fish caught by citizens of the United States?

It is contended that a corporation organized and existing under the laws of the state of Illinois is a citizen of the United States; and that when such a corporation through its Canadian agent employs Canadians to fish as aforesaid, that the fish so caught are caught by a citizen of the United states, to wit, by such corporation through its servants.

The Constitution of the United States, in the Fourteenth Amendment, establishes a clear and comprehensive definition of citizenship, viz.:

"All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States, and of the state wherein they reside."

"Citizens are members of the political community to which they belong. They are the people who compose the community, and who, in their associated capacity, have established or submitted themselves to the dominion of a government for the promotion of their general welfare and the protection of their individual as well as their collective rights." (U. S. v. Cruikshank, 92 U. S. 549.)

"A grant of corporate existence is a grant of special privileges to the corporators, enabling them to act for certain designated purposes as a single individual, and exempting them, unless otherwise especially provided, from individual liability. The corporation being the mere creation of local law, can have no existence beyond the limits of the sovereignty where created. As said by this court in Bank of Augusta v. Earle, 'It must dwell in the place of its creation, and cannot migrate to another sovereignty.' The recognition of its existence even by other states, and the enforcement of its contracts made therein, depend purely upon the comity of those states—a comity which is never extended where the existence of the corporation or the exercise of its powers are prejudicial to their interests or repugnant to their policy." (Paul v. Virginia, 8 Wall, 181.)

In certain cases, for some purposes, a corporation established under the laws of a state, has been held to be a citizen of such state, it being conclusively presumed that the stockholders are citizens thereof. Under the tariff act of 1890, paragraph 571, certain fish caught in fresh waters by American vessels, or with nets or other devices owned by citizens of the United States were exempt from duty.

While that act was in force, it was held by the Board that fish caught in nets owned by a corporation organized under the laws of one of the United States whose stockholders were citizens thereof, were caught in nets owned by citizens of the United States, within the meaning of the law. But the title of ownership of such personal property might be vested in a state corporation or in individuals, neither of whom would be obliged to remove from their home or domicile in order to retain the ownership, for such ownership is vested by operation of law, and fish might be caught with such nets in a foreign country by aliens. Under the present law a very different proposition is presented, for under the act of 1890, a passive ownership of the nets by citizens of the United States was sufficient to entitle an importer to free entry of fish caught abroad in such nets, whether caught by aliens or otherwise, but under the present act the ownership of the nets or fishing apparatus is immaterial, provided the fish are actually caught by citizens of the United States.

A private citizen of the United States may leave his domicile in the United States, go to another country and there catch fish; bnt if he never leaves the United States it is certain that he can not catch fish in such foreign country. He might, while remaining at home, hire a subject of a foreign country to there catch fish for him, but the catching would be the act of the alien. A domestic corporation certainly can not do more than a private citizen, or be entitled to greater privileges.

The language of the statute is not ambiguous; it provides for the free entry of certain fish caught by citizens of the United States, and not for fish caught by aliens for citziens of the United States. There is a discrimination in the law in favor of the labor of such citizens. In order for us to find that fish were caught by citizens of the United States, it must appear that such persons were physically present and personally acted in taking the fish. The soundness of this view is readily perceived, because it appears by the evidence that none of the parties interested in the numerous cases of this character pending before the Board have undertaken to violate the Canadian fishing laws prohibiting them from catching fish, but they have contracted for the catches of Canadian licensed fishermen, or hired them to fish for them by the month, which practically amounts to the same thing, thus recognizing that under the laws of Canada they could not, being citizens of the United States, catch fish with nets in the waters in question without incurring serious consequences, which they are unwilling to suffer, and which they do not incur because they do not catch the fish.

Upon the facts found, we hold that the fish in question were not canght by citizens of the United States, within the meaning and intent of paragraph 555 of the tariff act of 1897.

The protests are overruled.

FISH SKINNED OR BONED.

Before the U. S. General Appraisers at New York, October 22, 1897:

In the matter of the protest 33824 b, of Davis' Fresh and Salt Fish Company, against the decision of the Collector of Customs at Detroit, Mich., as to the rate and amount of duties chargeable on certain merchandise, imported per Excelsior, and entered August 25, 1897.

OPINION BY LUNT, GENERAL APPRAISER.

We find that the Davis Fresh and Salt Fish Company imported into the port of Detroit, August 25, 1897, certain skinned fresh-water fish, to-wit, catfish, caught by aliens.

The collector assessed duty thereon at 1¼ cents per pound under the special provision for "fish, skinned or boned," contained in paragraph 261 of the tariff act of 1897. The importer claims that the fish are dutiable under paragraph 259 at one-fourth of 1 cent per pound as fresh-water fish, not specially provided for in this act.

In our opinion, paragraph 259 provides for all fresh-water fish, as a class, whether fresh, frozen, salted, smoked, or otherwise, prepared for preservation, excepting, however, fresh-water fish, either when caught by citizens of the United States, or when as fish packed or prepared in a particular manner, specific provisions are elsewhere made for them. The first clause of paragraph 261 contains the general provision for fish, limited, however, by the words "not specially provided for in this Act," and it therefore embraces all salt water and migratory fish not the product of American fisheries not elsewhere more specifically provided for, either by name or as packed or prepared in a particular manner, as provided in paragraphs 258, 260, and the latter clauses of paragraph 261. Just as the provision in paragraph 258 for all other fish in tin packages embraces salt water, migratory, and fresh-water fish when so packed, so the provision in 261 for fish skinned or boned is more specific than fresh water fish or fish fresh, pickled, etc., provided for generally in paragraphs 259 and 261.

We hold, therefore, that although the fish in question are fresh-water fish, yet as they have been prepared or dressed in a particular manner which presumably greatly enhances their value per pound over fish in ordinary conditions, they are subject to the specific provision for fish skinned or boned contained in paragraph 261.

The protest is therefore overruled.

FRESH-WATER FISH CAUGHT BY CITIZENS OF THE UNITED STATES.

Before the U. S. General Appraisers at New York, October 22, 1897:

In the matter of the protests, 34013b, etc., of the Buffalo Fish Company (limited), against the decision of the Collector of Customs at Buffalo, N. Y., as to the rate and amount of duties chargeable on certain merchandise, imported per the vessels and entered on the dates named in annexed schedule.

OPINION BY LUNT, GENERAL APPRAISER.

We find—

1. That the Buffalo Fish Company imported into the port of Buffalo, on divers days since July 24, 1897, as shown in the schedule annexed, certain fish, frozen or packed in ice, upon which duty was assessed at the rate of one-fourth of 1 per cent per pound as provided for fresh-water fish in paragraph 259 of the tariff act of 1897.

The importers claim free entry, as for fish, the product of American fisheries, under paragraph 626, or as fish caught in the Great Lakes or other fresh waters by citizens of the United States, provided for in paragraph 555.

2. The Buffalo Fish Co. is a corporation organized and existing under the laws of the state of New York, having its principal office established at Buffalo; that some of its stockholders are Canadians, but the majority are citizens of the United States.

3. That the fish in question were caught in the waters of Lake Winnipeg, or adjacent waters, in Manitoba, in the Lake of the Woods, in Lake Superior, and in Georgian Bay, Lake Huron, at places within the territorial jurisdiction of the Dominion of Canada, and within the territory subject to its laws. That at the several places where said fish were caught the Canadian laws prohibit fishing with nets by unlicensed persons, and under said laws only British subjects are so licensed to fish.

4. That all of said fish were taken in gill nets or caught in pounds or netted inclosures adjacent to the Canadian shores. That the gill-net fishing was principally conducted by Canadian masters and crews of steam vessels of Canadian registry, or otherwise by Canadians and the pound fishing by Canadians, all of the fishing being carried on under Canadian licenses.

5. That the persons so engaged in fishing were paid, some of them, by monthly wages, and some a certain price per pound for the fish caught by them; that the capital invested is furnished by this company, but the legal title to the vessels and outfits is vested in a Canadian stockholder, he being the general manager of the fishing business of the company in Canada; that the business is so conducted because citizens of the United States or corporations thereof would not be permitted to so conduct fishing operations within the Dominion.

American fisheries are either certain places or localities where fishing is conducted, which places are wholly within the territorial jurisdiction of the United States, or the business or industry of fishing carried on by American vessels, or citizens of the Uuited States under its flag and protection.

The evidence in this case fails to sustain the claim that the fish in question were caught by citizens of the United States, and it does establish the fact that they are not the product of American fisheries, but of Canadian fisheries, maintained by American capital.

Referring to our decision in re The A. Booth Packing Co., protest 33505b et seq., for a further expression of our views upon the questions of law involved, we hold that none of the fish in question are entitled to free entry, and overrule the protests.

TWO LARGE FLOATING DOCKS.

The following data and description of the two largest docks in existence are from Engineering, London.

The larger dock, designed and built for their own use by Messrs. Blohm & Voss, engineers and shipbuilders at Hamburg, Germany, was put in service in April.

The dock built by Messrs. Swan & Hunter, Wallsend, England, is for the Spanish government at Havana. From the time of laying the first plate to the launch of the completed dockw as needed a period of six months only. The dock consists of five pontoons, which give the requisite buoyancy, and of the high side walls, which regulate the immersion of the pontoon and secure the requisite stability. In addition, there are movable caissons or end gates, which are only used when it is necessary to increase the lifting power. Of the five pontoons, the three middle ones are rectangular, while the end ones are pointed at the ends; all are uniformly 87 feet 11½ inches wide, the middle ones being 75 feet, the end ones 108 feet 4 inches long. A space of 2 feet is left between the pontoons, which lie wholly between the side walls, to which they are strongly bolted. The length over all of the dock is 450 feet, the width between the broad altars, 82 feet, and the depth over the sill, 27.5 feet. When immersed to this extent the dock draws 42.5 feet of water, the freeboard being then 4 feet 2 inches. The whole is designed so as to be self-docking. Any particular pontoon can be detached and docked for examination and repairs, while the under-water portions of the side walls can be got at by careening the whole structure. The pumping machinery, driven by electric motors, is capable of lifting the dock with a 10,000 ton ironclad on board in 2½ hours, and is in duplicate. The tanks which control the flotation are thirty in number, each pontoon being divided up into four water-tight compartments, while the walls below the engine decks are each divided into five such compartments.

The following table gives the principal data of the two docks:

	Hamburg Dock.	Spanish Dock.
Length, feet	560	450
Breadth, feet	88	82
Depth over the sill, feet	30	27.5
Draught of water, feet	47	42.5
Freeboard, feet and inches	4	4-2
Lifting power, tons	17,500	10,000
Time for lifting maximum ld., hrs.	1	2½

The Spanish dock was towed out to Havana fitted with a foremast and square sails, and with a jigger mast, while steam steering gear and other appliances were installed in case of emergencies arising during the voyage.

THE STURGEON BAY NAUTICAL SCHOOL.

A letter to the RECORD from Mr. Long, principal of the Sturgeon Bay Nautical School, states that the winter term will begin Dec. 1st.

This school was opened a little over a year ago as an experiment, and conducted during the winter of 1896-97 with such success to its principal, and with so much satisfaction to its pnpils and to the lake marine generally, that the same has become a fixed and established institution of the city of Sturgeon Bay, and is daily gaining in favor and popularity among the marine profession, vessel owners and insurance men.

The more knowledge a man has the better he is prepared to fill any position he is called or necessitated to fill in the various pursuits of life, and it must be apparent to all that the more proficient a sailor, wheelsman, mate or captain is in the science of navigation, the more profitable, safe and desirable man he is to his employer and to himself.

Vessel-owners and insurance men are becoming more and more convinced of this fact and mariners themselves see and realize it, and more will avail themselves this winter of the advantages of the various nautical schools now conducted on the lakes, than ever before.

Many men imagine that navigation is a very difficult study, and a great amount of time is necessarily consumed in learning the science, but this is a mistaken idea. Practical navigation is extremely simple and may be learned quickly.

No previous knowledge of arithmetic is necessary beyond the four fundamental rules of mathematics. The scientific formulas upon which the various problems are based are not considered, but clear, common-sense explanations are given in their stead, so that the subjects become more intelligible to even those who know nothing of arithmetic beyond said fundamental rules—addition, subtraction, multiplication and division.

The "why and wherefore" of the methods used are made plain to the student. Therefore, any man, however limited his education, may, provide he possess ordinary intelligence, learn practical navigation and become a competent navigator in a very short time.

Navigation is one of the most interesting of studies and it surprises one to find how quickly a knowledge of the same may be obtained when it is explained in a simple, common sense way by one who understands the theory of the science.

The only place to learn navigation properly is in a nautical school where the theory of the work is taught. It is purely a book study, and a man might just as well go to sea to learn to read and cipher as to expect to acquire a correct knowledge of navigation on the deck of a vessel.

The course of navigation taught embraces the rudiments of the science and such workings as are necessary for navigating a vessel on the Great Lakes: The Arithmetic of Navigation (the arithmetic of practical navigation is very simple); the Compass and its Details; Variation of the Compass; the Subject of Magnetism; Deviation of a Compass in all its Details; Different Methods of Determining the Deviation; Chart Work; Charts; Chart Construction; Use of Charts; Correcting Courses; Plotting Position by Different Kinds of Bearings and by Soundings in Thick Weather; Leeway and Current Sailings; the Various Kinds of Time, Declination, Etc.; Deviation of a Compass by Azimuth Observations of the Sun and Compass Compensating is fully explained, Weatherology and Law of Storms, etc.

THE FIRST WELLAND CANAL BRIDGE-TENDER.

In publishing the portraits and giving brief biographical sketches of Canadians who are or have been connected with marine interests, we take the following from the Sunday Toronto Globe. The series has been continued in that paper each week.

Mr. William Walker was born in 1832. In 1838 the family moved to St. Catharines. "At 15 years of age," he says, "I was appointed bridge tender at Hamilton bridge in the town of St. Catharines; this made me the first bridge tender on the Welland canal. The bridge was but 50 yards from William Hamilton Merritt's house, and he often took a step down hill to inquire about the doings of the canal. This was my best hold. I could always give a satisfactory answer, if I was a barefoot boy of that age. I was quite a canaller, and while the lock was building between St. Catharines and Thorold for two seasons I would walk up to Thorold every Saturday, and if the weather was bad I would play truant some days in the week and go up there, and so I understand the canal from bottom to top.

"Some time before I went on the canal I went aboard the first screw boat that ever swung a wheel, built in Oswego, by the name of Vandalia. There were not many who boarded her besides myself, Mr. Arnold and Mr. W. B. Robertson, superintendent of the canal at that time.

"The third season, in 1849, I was placed on Lock No. 3, and remained there until 1870, close of navigation. I had other work to do, measuring timber in raft, copying clearances, detaining vessels for damage done to the canal, taking out old gates and replacing them with new."

While on the canal Mr. Walker saved no less than twelve persons from drowning, having to jump into the canal for seven of them. Growing tired of the canal, he bought and sailed the schooner Almina for one season, working on repairs in 1872, and in 1873 working in the late F. Street's mill at Niagara Falls. After nearly two years the mill was burned, and Mr. Walker moved to Clinton, where he carried on a flour and feed store for three years. He is at present in the grocery business in Humberstone. In 1871 he married Miss Fanny Merritt, daughter of Mr. Edward Merritt, shipbuilder, St. Catharines.

GOOD SEAMANSHIP.

Much favorable comment has been heard recently regarding Capt. Nickels, of the large American four-masted ship May Flint, 3,577 tons gross register. The vessel left Philadelphia on the 21st of August for Japan, and on the 8th of September, when 400 miles from the Azores, in the center of a cyclone, she was thrown on her beam ends and partially dismasted. Her broken spars, held by the rigging, pounded against her for several hours, threatening every moment to make a hole in her. After the gale abated the ship was spoken by the steamship Craftsman, which offered to tow her into port, but Capt. Nickels refused this offer of service, and, using the material at his commond, rigged jury-masts, the work occupying fifteen days, when the ship had the appearance of "two hermaphrodite brigs when all sail was set." He then directed his course back to New York, where he arrived on the 8th of October, having traversed a distance of 2,200 miles from the scene of the disaster, one day, with a favorable wind, logging 240 knots. Recognizing the large monetary value of the service rendered them, the underwriters on ship and cargo have presented Capt. Nickels with a magnificent gold watch and chain. President Raven, of the Atlantic Mutual Insurance Co., who made the presentation, spoke in high praise of the skill and seamanship displayed by the captain. The ship's hull is uninjured, and she will sail again as soon as her spars and sails are replaced.

JAMES E. SIMPSON.

Mr. James E. Simpson died October 27, at Fall River, Mass. Mr. Simpson is very widely known on both the Atlantic and Pacific Coasts of the United States, among shipbuilders, ship owners and shipping merchants, he being the patentee and originator of timber graving docks. Mr. Simpson was born July 13, 1813, and was therefore in his eighty-fifth year. The earlier portion of his life was devoted to the building and repairing of vessels, and while so engaged the idea of timber graving docks was conceived by him, and with the courage and energy which characterized the man, he carried out successfully the Simpson system of timber dry-dock construction, which system has gained a world-wide reputation. Our Atlantic coast is dotted with these monuments of his skill, and there are also docks of his construction in the British possessions northeast of our own territory. The United States government, as well as the Colonial government of Newfoundland, have, from time to time, commissioned him to build dry-docks for public use.—Scientific American.

The figures for French shipping for 1896 show an increase over those for the previous year, but notwithstanding the improvement, the French Chamber continues to feel somewhat anxious for the future of its shipping. At a recent meeting of the Chambers of Deputies it was decided to put a series of questions on the subject to the various chambers of commerce, with a view to eliciting probable remedies. Although the matter was fully discussed by the Havre chamber, it could offer no suggestion; but decided to refer the matter to a special committee. This committeee held three meetings, and the subject which was most fully discussed being the question of bounties to French built vessels, and the allowance on foreign-built vessels, which was suppressed in 1893. The committee proposed to revive the half bounty for steamers, but as sailing vessels' owners were satisfied with the present conditions, it was decided not to make any alteration in the present arrangements. The committee also recommended an increased bounty on shipbuilding, as the present rate was considered inadequate when circumstances of production were taken into consideration.

MARITIME LAW.

THE GEORGE W. CLYDE, COMMERCIAL TOWBOAT CO. V. THE GEORGE W. CLYDE, LUCKENBACH, ET AL V. SAME.

District Court, E. D. New York:

SALVAGE SERVICES—COMPENSATION.—Services of tugs which came promptly to the assistance of a vessel in immediate danger of sinking in deep water from collision, and in some 15 minutes, without danger to themselves, beached her in a safe place, held to be salvage services for which $1,000 should be awarded.

The action of a tug in going voluntarily to a vessel injured by collision, merely to take off her passengers and crew, while other tugs summoned by the master, and adequate for the purpose, are engaged in rescuing her, is not a salvage service. These were libels by the Commercial Towboat Co., by Lewis Luckenbach and others, and by the Morning Journal Association, against the steamer George W. Clyde, to recover compensation for alleged salvage services.

Benedict, District Judge. These are actions to recover salvage compensation for services rendered in towing the steamship George W. Clyde at the Narrows on the afternoon of Feb. 29, 1896. The steamer George W. Clyde, a coastwise iron steamer, 250 feet long, having on board some cargo and passengers, outward bound, when passing through the Narrows, in a dense fog, encountered a collision which stove a large hole in her port side, and put her in danger of sinking immediately. When struck, she was in the middle of the channel at the Narrows, where the water was from 60 to 80 feet deep. The fog lifted almost immediately after the collision, and two steam tugs, the Joshua Lovett and the Dudley Pray, belonging to the Commercial Towboat Co., chanced to be opportunely within hailing distance. These two towboats were immediately hailed by the master of the George W. Clyde, and, coming alongside of the Clyde on her starboard side, they passed their lines to her, and at once towed her to shore, some 800 to 1,000 feet away, where she was beached in safety. These towboats were made fast in about three minutes and the vessel was beached in about fifteen minutes time. There was no risk encountered by the tugs, no extraordinary exertion was put forth, and the towage was of an ordinary character. The service was, however, rendered promptly, and it saved the Clyde from the danger of sinking in deep water. I think that salvage compensation may well be awarded these tugs, and, in my opinion, $1,000 will be sufficient salvage compensation for them both. I do not apportion the sum between the two boats, for the reason that they are owned by the same company. At about the same time the steam tug Scandinavian, a tugboat belonging to the libelants, Lewis Luckenbach and others, came up to the port bow of the Clyde. The object of her approach to the Clyde is plainly stated by Mr. Quail, who was on board the Scandinavian for the Morning Journal, and who claims to have been in command of that tug as owner pro hac vice. This witness said: "I ordered Capt. Olsen to lay the Scandinavian alongside of the Clyde, so that we might take off the crew and passengers." Again: "The tug's boarding ladder was put up to the side of the Clyde for no other purpose than to allow the crew and passengers of the Clyde to descend in safety to the tug." Again: "It was because of my desire to take these people off that the Scandinavian was first made fast to the Clyde, so as to keep her alongside until she got the people off." There is testimony showing that, when the Scandinavian approached, she approached in a shape that would render her assistance useless. But, however that may be, she got out one five-inch line, and made fast to the Clyde, and, after the crew and passengers were taken off, she no doubt, by means of her line, applied some power to the Clyde. But she received no orders from the Clyde, and was not asked to render assistance, and the evidence shows plainly that her assistance was not needed. The two tugs that already were there, that were called at the request of the captain of the Clyde, and whose lines those on the Clyde had taken and fastened, were abundantly sufficient to put the Clyde in a place of safety. Under such a state of facts, in my opinion, the Scandinavian is not entitled to salvage—First, because her services were not needed nor furnished at the request of the captain of the Clyde; second, because, according to the testimony of Quail, the only object of her exertion, was to take off the crew and passengers; services of that character do not give rise to a claim for salvage against the ship. In my opinion, therefore, the claims of the Morning Journal and Lewis Luckenbach and others for services rendered by the Scandinavian must be rejected. The decree will be that the libel of Lewis Luckenbach and others be dismissed, without costs; also the libel of the Morning Journal will be dismissed, without costs. On the libel of the Commercial Towboat Co. the decree will be for $1,000 and costs.

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ADVERTISEMENTS for the construction of a vessel for coast survey purposes has been issued by the Navy Department. The vessel will be of 800 tons displacement and capable of steaming 8 knots an hour. She will carry a coal supply of 200 tons to enable her to steam long distances. The contract requires her completion in 15 months, and she is intended for service in surveying the coasts of Alaska and the Aleutian Islands.

THE Hydrographic Office announces the publication of a chart of the world, No. 1682, showing area in the Pacific ocean having Hawaii as the only base of supplies in trans-Pacific voyages, and showing, for purpose of comparison, an area of equal extent covering parts of America, Europe, Africa, Atlantic ocean and Indian ocean. A table is printed on the chart showing the distance in nautical miles from San Francisco to the principal ports and islands of the Pacific ocean. The distances are also given from Honolulu to the important ports of Asia and America, and to principal harbor in each of the island groups; also the power to which the principal island groups of the Pacific ocean belong. The chart may be had from the sales agents of the Hydrographic Office or by notifying the MARINE RECORD.

LAKE masters and officers have this week been compelled to give refractory seamen a mild trouncing, at least, if the allegations of a schooner sailor at Buffalo, and the other in a steamer at West Superior, be substantiated. In the latter case the man no doubt was very saucy, if not to say insolent, and both master and mate losing their tempers through not wishing to stand abuse of that sort, gave the seaman an opportunity to sue for $500 damages, though at the worst it is, or would be, only a case of common or provoked assault. Relative to the foregoing, there is no possible excuse for anything like the occasional salt water practice to occur in the lake trade, and especially while vessels are in port as in these two instances. In the ocean trade, refractory, sullen, low-lived seamen are not unfrequently met with and they always cause no little anxiety and trouble to the master and officers in properly handling them for the safety and comfort of all concerned, and it may furthermore be mentioned that where two or three are gathered together there is often a black sheep among them, hence when it won't listen to the voice of the shepherd it has to be coerced into obeying. In this connection, however, we can not too strongly deprecate or condemn any attempt at using physical force on board of lake vessels, masters are by virtue of their training and position gentlemen, able to control themselves as well as the actions and conduct of others. Mates make masters and the same line of reasoning applies, besides, as we have said, there is no possible excuse for a man losing his temper over so trivial a matter as a little insubordination of one member of the crew, at any time, and still less when a vessel is lying in port where the strong arm of the law can be made so easily available.

WRECK INQUIRIES.

The Supervising Inspector-General of the Steamboat Inspection Service is reported as saying—and the report is no doubt correct judging from all former experiences—that no inquiry will be held relative to the recent loss of the steamer Idaho and nineteen lives, as the officers holding licenses, and over whom the service held jurisdiction, had been lost with the steamer.

The officers of the steamboat inspection service made a very laudable attempt this season to determine, in one or two instances, the culpability of the officer causing a collision, though the findings in both cases were set aside, or rescinded by the officer in charge of the district, and in one case, that of the Christopher Columbus-Virginia collision, one of the masters was reported as intending to enter an action against the local inspectors for false judgment, defamation of character, or some equivalent plea.

It seems to us that the steamboat inspection service have a very hazy or indistinct idea of the points or facts to be brought out on the holding of a court of inquiry of this sort. It is not of primary importance to look towards the suspension or cancellation of licenses, in fact that is of the least importance in many cases and notably so where the vessel has taken all hands with her, as instance the several total losses of lives and property occurring on the lakes almost each year.

To elucidate our meaning in this matter we may take a hypothetical case and assume for the purpose of illustrating the question that a large building collapsed burying a score or more of people in its ruins, or that a serious fire took place in a workshop, factory, tenement, office building or any such an edifice, causing the loss of a number of lives, it would then be the duty of a municipal officer to inquire into and if possible to determine the indirect or immediate cause of the accident, irrespective of whose license might be revoked by the ultimate findings of the court. So also, in the case of a missing vessel should such an inquiry be conducted and more pointedly so where the vessel was known to have foundered.

It would seem almost unnecessary to enumerate the several points of evidence which ought to be brought forward in such an inquiry, as each casualty presents the actual facts to be made clear, though all on the same lines or having the same ultimate object, viz., to learn as far as possible the cause or reason for the casualty.

Without going into the detail of names or probable location of losses we have recently had a passenger and a cargo steamer, both new and high classed vessels, missing within the past few seasons, and the plain points at issue would first have been to determine if the vessels left port in good seaworthy condition, well found and properly manned and equipped according to the rules of the steamboat inspectlon service and the U. S. statutes governing such cases, was she over laden? was the cargo properly stowed and all hatchways made secure? had she the proper stability to withstand a heavy sea as laden? was she fit and prepared for winter service when encountering heavy ice, etc. In nearly all cases these questions could truly be answered in the affirmative in the lake trade, and yet there would be no dealing with licenses.

In the case of founderings, when the location of the sunken vessel was known, it might be asked if it was good judgment that led the vessel into such a position at the time, admitting of course that owing to a loss of life she had better have been somewhere else, if a change of location would have ensured a better chance of safety, and omitting any sentiment in the facts under consideration. Where a collision takes place, the line of inquiry is of course simply a matter of finding which vessel was in default, and on a serious stranding, involving besides loss of life, heavy financial damages to owners and underwriters, the causes leading up to such stranding ought to be clearly brought out so that others could avoid such causes in the future, and in this connection there are several important features to be dealt with, as for instance, state of the weather, last known position and courses steered, compass or magnetic, use of lead, good lookout, any current, etc.

In once more advocating the holding of these inquiries THE RECORD is of the belief that a much greater degree of safety to life and property would ensue by the knowledge gained from the evidence adduced and the findings of the court, but, as someone has said, we should in the first place "have a court as is a court," so that its verdict might be respected and upheld, instead of placing it in such an anomalous position that a hole can be kicked through its decision at any stage of the proceedings, as we have recently seen in the several cases inquired into.

As a further suggestion, the supervising inspector of the district might be made the presiding officer of the court with the local inspectors as his assistants, and the right of appeal from decisions so rendered be delegated to the head of the service at Washington, who, if necessary, could consult the highest legal talent at Washington, viz.; the attorney general, at any time where an intricate case involving the construction of language contained in the marine laws might be brought into question.

It is not possible with the space at our command to go further into this subject at the present, nor is it necessary to do more than simply point out the future advantages to be gained if the sailing community was furnished with a detailed account of each serious casualty, and the means by which such might have been avoided, this, of course, would be shown by the findings of the court.

A few years ago there was a disposition evinced to quash any inquiries such as the foregoing suggests, there was also a great laxity evidenced in the matter of damage surveys, and such an action as a final survey to certify that the extensive damage had been properly repaired in a good, skillful and workmanlike manner was a thing unknown. Fortunately, a change is now being brought about and the fullest investigation into serious losses is courted, so also is more attention being paid to duly certified surveys by competent and qualified men.

LAKE COMMERCE.

The Secretary of War, Gen. Russell A. Alger, in his annual report to the President treats of the lake commerce and the pending river and harbor bill as follows:

The practical completion of the deep water channel through the Great Lakes marks the beginning of a new era, and its benefits to the future commerce of the great Northwest, and, indeed, the whole country can be realized to some extent by the marvelous development of the commerce through the lakes in recent years. Without going into details, it will suffice at this time to repeat the statement of the chief of engineers that the commerce passing through St. Mary's Falls canal, to and from Lake Superior alone, during the navigable season of 1896 comprised 16,239,062 tons of freight, valued at $195,146,842, and through the Detroit river, coming from Lakes Superior, Michigan and Huron, about 27,900,000 tons, valued approximately at $300,000,000.

In accordance with the act of June 4, 1897, a deep waterways board was appointed, consisting of Maj. Charles W. Raymond, Corps of Engineers, U. S. A.; Alfred Noble, of Chicago, and George Y. Wisner, of Detroit, with Gen. J. H. Kidd, of Ionia, Mich., as secretary. The board is now in the field and pushing its work forward as rapidly as possible.

The estimates for river and harbor improvements submitted by the chief of engineers have been prepared in accordance with the requirements of law. (Acts of June 23, 1866; March 2, 1867, and June 4, 1897, quoted by him.) They greatly exceed former estimates, and, while I hesitate to express an opinion in matters so fully within the knowledge of members of Congress, I cannot refrain from stating the result of my observations since my connection with the department. It is true that I have not had the opportunity to make a personal inspection of many of the works in question, yet with the exception of waterways and harbors where there is a large traffic, or where immediate improvement is imperatively needed, I am convinced that the estimates are largely in excess of what they should be at a time when the demands upon the treasury are as great as now. It is therefore recommended that the amount to be appropriated be largely reduced below the estimates.

Special attention is invited to the fact that there are now continuous contracts outstanding that will require an expenditure of over $17,000,000 during the fiscal year ending June 30, 1899; of over $14,000,000 during the fiscal year ending June 30, 1900; $5,700,000 during the fiscal year June 30, 1901; $796,000 during the fiscal year ending June 30, 1902, and $345,000 during the fiscal year ending June 30, 1903. It is to be understood that these statements are of course approximate only, but they are believed to be nearly correct.

LAKE FREIGHTS.

The greatest activity during the week has been witnessed in coal shipments and at freights varying from 75 cents to 85 cents, Cleveland to Duluth. The Milwaukee rate is still at 65 cents. A cargo of 5,369 tons, Cleveland to Duluth at 75 cents was shipped this week, and 85 cents was paid on a cargo of bituminous, Buffalo to Duluth. The Buffalo rate on anthracite is 60 cents to Lake Michigan ports and the head of the lakes. It is figured that Duluth will go short

by 300,000 tons this season owing to the coal strike, and as the cold weather will soon set in it can not now be carried.

There is a slight improvement in the demand for grain tonnage at Chicago, and the rate is firm at 1½ cents on corn. The Duluth rate all week has been nominal at 1¾ cents on wheat to Buffalo with no chartering to speak of, 2⅜ cents was offered to Chicago without being taken.

The shipment of lumber from the head of the lakes for the season exceeded those of the season of 1896 by 38,000,000 feet. The total water and rail shipment is 281,000,000 feet. The exact figures are now known, having been collected by C. H. Bradley & Co., according to their custom every fall.

THE CANAL COMMISSION REPORT.

At Ottawa the Department of the Secretary of State has just issued the last report of the deep-water-ways commission, which is dated June 17, last. The Canadian commissioners, Messrs. O. R. Howland, M. PP., T. C. Keefer, C. E., and Thos. Munro, C. E., have also presented interim reports after their previous meetings with the United States commissioners, who are James B. Angell, President of Michigan University and United States minister to Turkey; John E. Russell, of Leicester, Mass., and Lyman E, Cooley, C. E., Chicago drainage canal. The last international meeting was held at Detroit, in December, 1896, and the United States commissioners in their report, made to the President the following month, asserted the entire feasibility of constructing a deep waterway, adequate to any scale of navigation which might be required, between the several Great Lakes and the seaboard, and added that it would be wise to provide for securing a channel of a navigable depth of not less than twenty feet. Secondly, they reported that the most eligible route was by the Niagara river and by canal on the east side from Tonawanda to Olcott in Lake Ontario; that the seaboard could be reached from Lake Ontario by the St. Lawrence river, and that the American seaboard could be reached by the St. Lawrence river and via Lake Champlain to the Hudson river, or by way of the Oswego, Oneida, Mohawk Valley and the Hudson river, and it was further stated that these alternative routes required to be completely surveyed in order that they might be compared in all respects, and that some estimate of the probable cost might be obtained. It was calculated that these surveys would call for an expenditure of $350,000, and the report recommended: "That complete surveys and investigations be made and all needed data be procured to mature projects for developing the Oswego-Oneida-Mohawk route, developing the St. Lawrence and Champlain route, improving the tidal Hudson river and improving intermediate channels of the lakes."

The report of the Canadian Commissioners quotes and lays stress on the importance of this statement of their colleagues in the various international meetings held, and adds that they were met throughout in an international spirit by the United States Commissioners, the boundary line being ignored in the investigations conducted. Proceeding, the Canadian report says: "Inasmuch as New York and the Atlantic States (including all the New England ones) form by far the most important market, both for home consumption and for exportation, no deep waterways route which is not the best for reaching that market would be considered by the originators of this international commission. The fact therefore that such a commission has been established indicates a belief on their part that an international route may prove to be the best, if not the only practicable one, to reach the American seaboard at New York, as it certainly would be the shortest and best to reach tidewater, and also Lake Champlain with its New England frontier. The supreme value to the northwestern states as well as to the Canadian prairies of an international route for deeper waterways, is that it will combine the shortest route to the Canadian seaboard, Europe and Lake Champlain, with the broadest, deepest and most speedily navigated waters, and therefore the quickest route from the heart of this northern continent to New York. The probable route of such an international work will be one by which all the new large canals required between Lake Erie and the Hudson river will be located along the northern and eastern boundary of the State of New York, with the single exception of the one between the River St. Lawrence and Lake Champlain, which is the only one necessarily within Canadian territory."

Referring to the remark in the United States report that it is practicable to construct in separate sections, so that benefit should closely follow upon expenditure, the Canadian report points out, in illustration, that "the completion of the Niagara ship canal would bring Lake Ontario into communication with the great steel fleet above Niagara (which is valued at many millions), 300 of the vessels of which are unable to pass the Welland canal. In like manner, the completion of the section between Lake St. Francis and Lake Champlain, in advance of new deep water canals on the south side of the St. Lawrence and of the connection of Lake Champlain with the Hudson river by a similar deep water canal, would bring New England at once into connection with the whole Great Lakes system, although at first only on the smaller scale of the Welland canal." The Canadian commissioners further say that they fully concur with the decision of their United States colleagues in favor both of the feasibility and desirability of a deep waterway between the Great Lakes and the Atlantic seaboard, and they also agree in the declaration that "the completion of the entire system as quickly as plans can be matured and economically executed is fully justified." It appears that so far each commission has carried on the investigations made within its respective country, and the report recommends that "if it is the desire of the government further to contribute to this international enterprise, we recommend that a sufficient sum be appropriated, to be used if required, so that, if Congress continues the international commission and provides the means to complete its work, Canada may be in a position to proceed with the surveys and estimates in that portion of the route which lies within her territory.

The report also includes various important statistical tables as to the lumber, iron ore, coal and grain traffic upon the lakes, appendices relating to the surveys made, and a map showing the Canadian territory through which a canal would have to pass should an international route be eventually adopted. The report concludes with the following pronouncement as to the necessity for a deep water outlet: "Experience with large vessels on Lake Erie between 1880 and 1890, and up to date, having been to reduce previous rates of freight between Buffalo and Lake Superior and Michigan about one-half (representing many millions of dollars saved in transportation charges), has convinced the representatives of the hundreds of millions of capital engaged in the commerce of the upper lakes that an extension of deep water to the Atlantic seaboard will effect an annual saving of more millions than will be required to pay the interest on the cost of such a work, great as that may be. One steamer brought into Buffalo last year (1896) 206,673 bushels of corn, or 5,787 net tons; another 176,800 bushels of wheat, or 5,304 net tons. These were the largest cargoes known on the lakes. It is also evident from the foregoing that such a waterway would only be undertaken upon the best route to New York, and Canada's interest in the question is whether that will be an international one. There is only one international route possible, which is that via the St. Lawrence and Lake Champlain, which is also one which permits of the extension of this deep water system to Montreal and thence to Europe on the shortest possible line. This fact, together with the consideration that the St. Lawrence-Champlain route gives the greatest extent of wide and deep water, the least mileage of artificial channel and the minimum of lockage, has given rise to this international commission. Canada's interest in such a waterway is only second to that of the United States. It would give an opportunity of doing what our canals were intended to do, but have failed to do, that is, to obtain the maximum amount of the western trade for the St. Lawrence route; and, in addition, it would afford the most direct navigation upon the largest scale between Montreal (as well as Ottawa) and Lake Champlain with its New England frontier, and with the Hudson river and New York; as also the most economical connection possible with Chicago, Duluth and Fort William on Lake Superior."

The late John B. Jervis, one of the most distinguished engineers of the United States, the builder of the Croton waterworks, chief engineer of the New York Central & Hudson River Railway, Erie canal and Western Railway, in his report February 13, 1855, thus speaks to the effect of the construction of the Caughnawaga canal, when accompanied by the connection in the same scale of Lake Champlain with the Hudson river: "Regarding the vast magnitude which the lake trade must reach, and the extent and excellence of navigation, this route presents an inland navigation which for grandeur in outline and for commercial importance has no equal on the globe. The idea of a vessel 500 to 700 tons loading at an inland port and proceeding (without breaking bulk) 3,000 miles without meeting currents in either direction, to reach a port on the ocean, can nowhere else be indulged in." Nothing shows the marvelous advance of inland navigation on the Great Lakes more than the above reference to vessels of 500 and 700 tons now that so many are plying above Niagara, carrying 5,000 tons and over."

A TOLEDO FIRM SECURES A LARGE CONTRACT.

The firm of George H. Breyman & Bros., composed of Capts. George, John and Eugene Breyman, of Toledo, have secured a very important contract at Boston. The Boston Post has this to say of the contract as well as of the dredges and scows:

The improving of Boston harbor by the government, according to the act ot the last Congress, has been entered upon. Operations were begun a week ago in what is known as the "Narrows," and it is said the work will be carried on without a stop until what is to be by far the biggest and most important undertaking ever known to New England's marine interests is finished. Fully three years are expected to be given to carrying out the plans. Nearly half a million dollars have already been appropriated, and it is understood that fully one million more will be apportioned in instalments as needed.

The widening and deepening of the main ship channel is the purpose. For about five miles from the inner harbor the channel, that is now varying and uncertain, is to be made an even cut 1,000 feet and over wide, and 40 feet deep. Surveys have been made from the end of this channel to Broad Sound for a channel 1,200 feet wide, and by the time the improvement now entered upon is completed, it is thought an appropriation will be made to start on the other. The contract for the present work was given to G. H. Breyman & Bros., of Toledo, O., and the equipment thus early put into use represents an outlay of nearly $300,000. The prominent features of the outfit are two dredges and eight scows, claimed to be the largest ever in use in the world. The latter are each 130 feet long, 30 feet wide, and 13 feet deep, and hold 800 cubic yards. Four are afloat and in use, and the others are well toward completion at the Burnham yards in East Boston.

But it is the two dredges that command attention as monsters when compared with the largest heretofore in use. In all their details they are fully double the biggest and most powerful that Boston dredging men have any knowledge of. One of the dredges went into service last week, and the other is receiving the machinery. The hulls are 115 feet long, 40 feet wide and 12 feet deep. The gigantic bucket or scoop used by each dredge weighs 12 tons, and its measurement is for a load of nine cubic yards. In the estimate of weight a cubic yard is put at 1½ tons, this making the load as good as 14 tons. The boom from which the scoop swings weighs 22 tons, and the "A frame," as it is called, supporting the boom, weighs 26 tons. Altogether the machinery of each dredge weighs between 500,000 and 600,000 pounds.

Notwithstanding, however, the extreme weight and size of the different portions of the machinery, the scoop works with marvelous speed and smoothness. Where now lying there is 40 feet of water at high tide, and the scoop takes its load, brings it up, dumps it and returns to the bottom in 40 seconds. Considerable difficulty is now being met in the excavating, the bottom being of clay as hard to get into as rubber, necessitating a good deal of boring and the presence of divers below. The dredge carries a crew of 20 men, who live on board. It is lighted by electricity and heated throughout by steam.

Before the dredge was named a letter was written to Mrs. General O. M. Poe, asking her permission to name the dredge after her late husband, who stood very high in the estimation of all who knew him. Mrs. Poe, in a letter to the firm, expressed herself as highly gratified that the dredge was to be named the Gen. O. M. Poe. The late general was well known and universally liked at all lake ports.

VESSELS CLASSED.

The American Shipmasters' Association, New York, have classed the following vessels during the week in the "Record of American & Foreign Shipping:" B. W. Morse, Grace Davis, Jerome B. Look, Nantasket, and R. D. Bibber, all three-masted schooners; also the British bark Barbadian and schooner Juanita.

Eighty-four vessels will soon be under construction for the French Navy. Eight of these will be squadron battleships, ten armored cruisers, one second-class squadron cruiser, one third-class squadron cruiser, four first-class squadron cruisers, two second-class station cruisers, two third-class station cruisers, one first-class aviso, ten squadron torpedo destroyers, six squadron torpedo boats, 36 first-class torpedo boats, one submarine boat and two gunboats. Of this number, 64 vessels are already in course of construction either in the government arsenals or in private yards, and 20 are to be begun at the end of the year or during 1898. The largest battleship will have a displacement of 13,000 tons, and the armored cruisers will each have a displacement of 9,500 tons.

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Marine Reporter.

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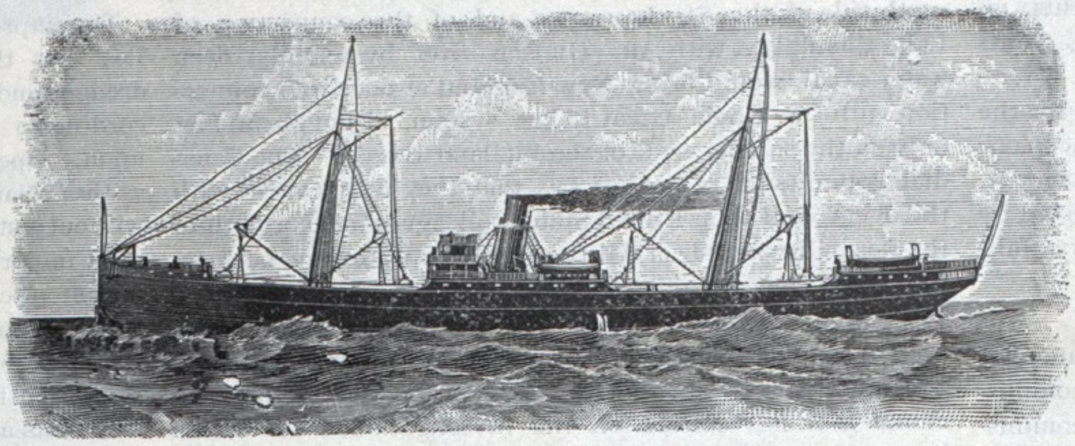

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THE STEAMBOAT INSPECTION SERVICE.

A special from Washington says:—It is among the probabilities that the steamboat inspection service of the United States, over which General Dumont presides, will be considerably shaken up in the near future. It appears that the Treasury Department is imbued with the idea that many of the appointments made in the service, one of the largest and most important in the country, were effected through political influence and with the view of weeding out all those who are incompetent, it has been decided to subject all the employes of the department to an examination.

The test of fitness and ability is said to be a very severe one, and those who are not well up in requirements would do well to heed the tip given and brush up. The Treasury Department officials say that while President Cleveland's order of May 6, 1896, putting employes of this divison of the department under civil service, is not to be set aside nor ignored, the examination to which those employes are to be subjected is in the direction of true civil service reform, and is intended to bring the steamboat inspection service up to the required standard as called for by the "test" examination. It is probable that the examinations will be held in the North during the winter, when navigation closes, and whenever it is found convenient to hold them in the South.

This proposed action on the part of the Treasury Department will be of special interest to those now holding office as well as to vessel men along the lakes.

EIGHT HUNDRED MILLIONS A YEAR FOR FREIGHT.

I do not know that many are aware that the annual freight bill of this country amounts to more than $800,000,000 a year. It is a tax, and the most burdensome tax which this country knows, upon our industries and upon production. Its meaning, brought home, is that each family in the United States pays on the average $60 a year for freight alone. If Commissioner Wright's statistics are correct—that the average income of each laborer in this country is not more than $500 a year—then each head of a family must set aside on the average the result of a month and a half of toil to pay his share of the freight. There is no Jones to do it here.

The people of the West have learned this economic lesson well. They have seen their wheat carried over the Great Lakes at an average charge of less than one mill per ton mile, when the railroad rate from their farms to lake transportation or to market was from a cent to a cent and a half per ton mile. They know that if all the freight in the United States could be carried as cheaply as is wheat from Duluth to Buffalo this burden would be cut down to one-tenth of what it now is.

Such considerations as these ought to make it plain, even to a wayfarer or a Congressman, that the freight question is worth a little attention.—"From the Lakes to the Sea," by Carl Snyder, in American Monthly Review of Reviews, for November.

The balance in favor of the United States in its commerce with Great Britain was greater last year than at any previous time during the last fifteen years, and, Consul-General Osborn says, probably for any year prior to that period. In a report just sent by him from London to the State Department on the foreign trade of the United Kingdom in 1896, he puts this balance at $370,000,000. The imports of the United Kiugdom were $125,596,730 more than in 1895, and from the United States alone the excess was $98,992,430. The exports were valued at $1,200,727,755, an excess of $70,000,000 over the preceding year. No conspicuous increase in the value of any article of export from the United States is noted, and the decreases are mainly in alkalies, wearing apparel, coal, cotton yarn, raw hides, metals, woolens and worsteds.

ASTRONOMICAL.

Prof. E. Stone Wiggins, of Ottawa, believes that the ærolite which fell near Binghampton, N. Y., a few nights ago, and is alleged to have contained a piece of iron with hieroglyphics, was really a message from Mars. Prof. Wiggins said:

"My opinion is that stones have for many thousands of years fallen from space upon the earth, which actually contained written characters. The ancient Jews and other nations speak of their sacred books as having fallen from heaven, and as the earliest important records were preserved in stone, it seems probable that the idea originated with ærolites like that of Binghampton. There is no doubt in my mind that there are thousands of these stones that have fallen to our planet since man arrived here, and are messages from another planet.

"If we lived on Mars and possessed the scientific knowledge of the people there we might send a projectile to another planet without difficulty. In fact, in a few hundred years more we may be able to generate and to control electric force so that we can throw a projectile beyond the moon's orbit, and it will either fall on that satellite or move toward and fall upon another planet. Suppose that Martians were to throw a stone, highly electrified, into the orbit of their nearest satellite, which is only about 7,000 miles away, so that it would be in advance of it, in its orbital motion, I have no doubt it would repel the stone in the line of a tangent, and with such force as to send it to our planet's orbit. Or suppose a comet were passing near Mars and toward the earth, stones thrown near it would follow in its trail and fall to the earth, like the stones which fell to the earth in November, 1872, after the comet of that year had crossed our planet's orbit."

The cargo of coal recently shipped from Buffalo on the steamer Zenith City was reported as being 5,127 tons.

LITERARY NOTES.

J. B. Lippincott & Co., of Philadelphia, are about to publish a personal narrative of life at sea on American ships, entitled "By Way of Cape Horn," by Paul E. Stevenson, of Germantown. Pa.

The first portrait of Stevenson Taylor, general superintendent of the North River Iron Works, Hoboken, N. J., and H. T. Gause, of the Harlan & Hollingworth Co., Wilmington, Del., ever published, appears in a supplement to the November number of Marine Engineering. As both gentlemen are extremely modest, Brother Donaldson must have done some very "tall talking" to obtain the photographs from which the plates were made.—American Shipbuilder.

The Illustrated American of Nov. 6th, publishes the "Story of the Monitor," as told by her commander, the late Rear Admiral John L. Worden, in a conversation with the writer of the article, Rufus Rockwell Wilson. The article has several illustrations, including a double page picture of the battle of the Monitor and the Merrimac, drawn by Worden G. Wood, grandson of Admiral Worden. Of the many pictures of this famous fight this is one of the very best.

The Macmillan Co., of New York, published on Monday, a neatly bound 285-page illustrated book called "Yankee Ships and Yankee Sailors," by James Barnes, the author of "Naval Engagements of the War of 1812." The engravings are from drawings by R. F. Zogbaum and Carlton T. Chapman. To all who love ships and narratives of ships this book will be especially interesting as it depicts the American ship as she was, and the native-born sailor of the early part of the century. The story—or rather stories, for there are several—relate to men-of-war and men-of-war's men, and the price of the book ($1.50) ought to make it very popular among the officers and seamen of the merchant marine as well as the navy.

The New York Shipping and Commercial List, the oldest commercial paper in America, will be issued daily on and after Jan. 1st, by D. O. Haynes & Co., under the title of New York Daily Commercial and will be an appropriate celebration of its 103d year of existence. The new enterprise will be a strong competitor of the Journal of Commerce and Commercial Bulletin.

NOTES.

Three officers of the Navy will shortly be relieved from light-house duty. Comdr. T. F. Jewell, now on duty as inspector of the 10th district, and Comdr. W. M. Folger, inspector of the 11th district, will soon be promoted to the grade of captain and will be assigned to the command of ships yet to be selected. Comdr. B. P. Lamberton's tour of duty as inspector of the 5th district expired in October, but it is desired by the Light-House Board that he should continue on duty a short time longer.

The bids for the construction of new revenue cutter No. 6, with headquarters at New York were opened at the Treasury Department Oct. 21st, as follows: Columbian Iron Works and Dry-Dock Co., Baltimore, Md., $141,000; time, July 25, 1898. Gas Engine & Power Co. & Chas. L. Seabury Co., consolidated, New York City, $151,800; time, Sept. 20, 1898. Lewis Nixon, Crescent Ship Yards, Elizabeth, N. J., $173,900; time, Sept. 1, 1898. The Chas. Hillman Ship and Engine Building Co., Philadelphia, Pa., $173,000; time, Sept. 1, 1898. The appropriation made by Congress for this vessel was $175,000.

At a meeting of the Mersey Docks Board on 14th October, the Works Committee submitted a scheme for the improvement of the Central docks, on the Liverpool side of the Mersey, at an estimated cost of £3,316,000. The committee state that the improvements are designed with a view to provide increased accommodation for vessels of the largest class now frequenting the port, and bearing in mind the tendency to increase the dimensions of vessels. The scheme above referred to on the south section includes the construction of four branch docks, two graving docks 630 feet and 520 feet long, an improved opening to the river from the Coburg dock, the deepening of the Brunswick dock, and a new double entrance to that dock. On the north section of the estate the proposed works include a new branch dock, with access to the Huskisson dock, the construction of a graving dock, 1,000 feet long, with an entrance 90 feet wide; and a number of minor works. The dock shedding is to be increased by 250,000 square yards of area.

Receiver's Sale of Tugs.

The entire fleet of tugs of the Vessel Owner's Tow ng Company to be sold by order of the Circuit Court of Cook County, Illinois. Bids for all or any of these tugs will be received by the receiver until 9 a. m., November 22, 1897. All bids to be accompanied by a deposit of 10 per cent. of the amount of bid. The tugs can be seen by applying to the receiver.

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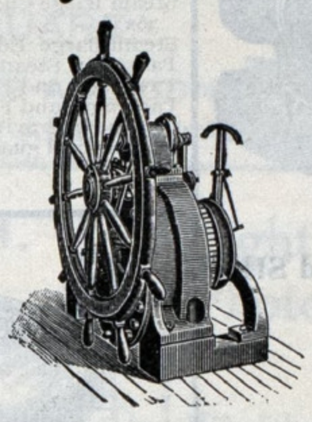

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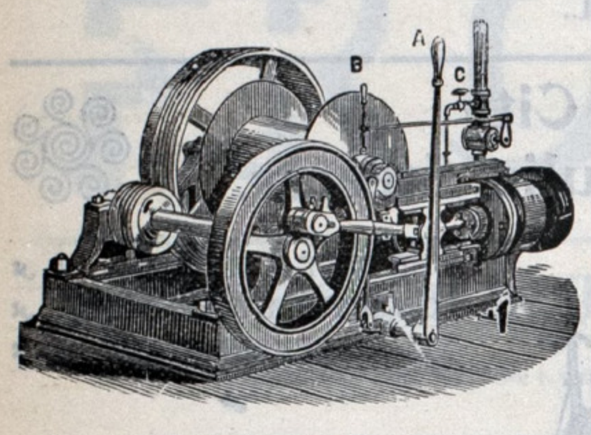

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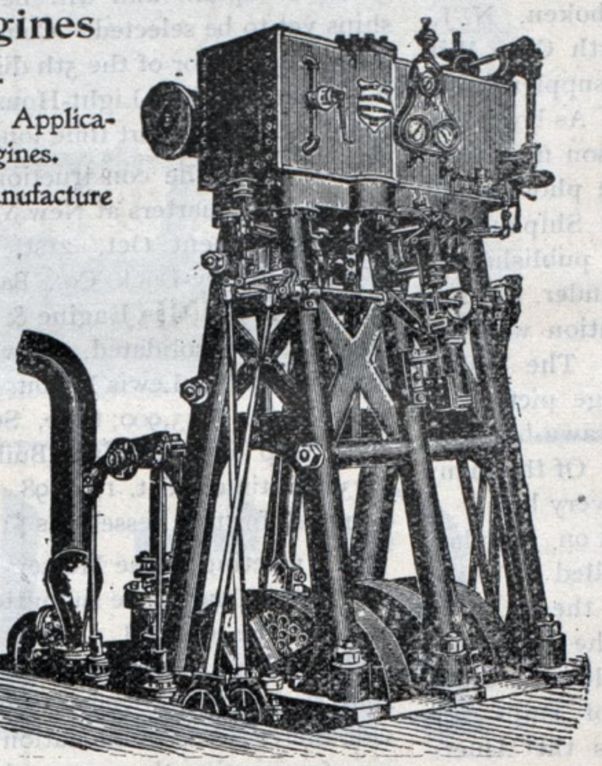

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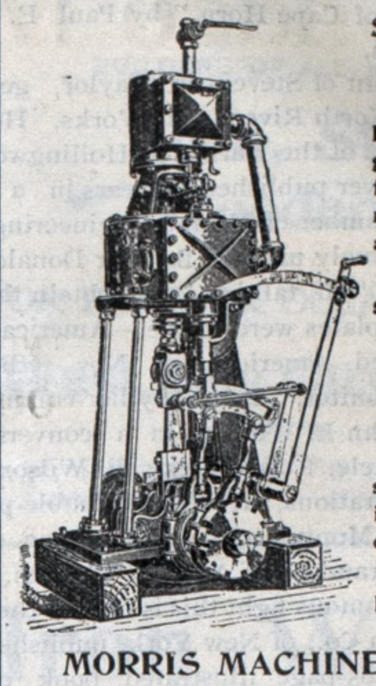

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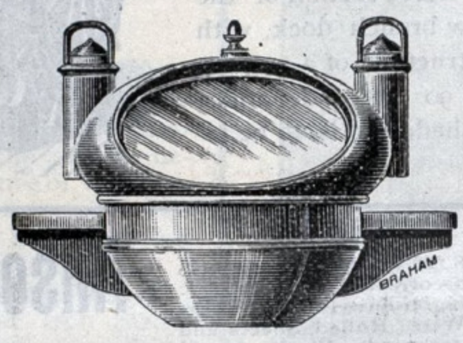

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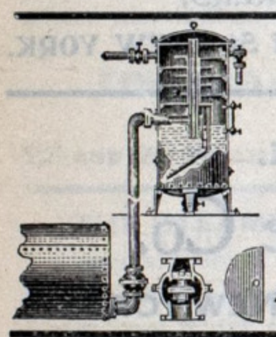

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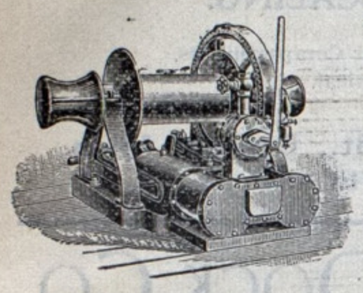

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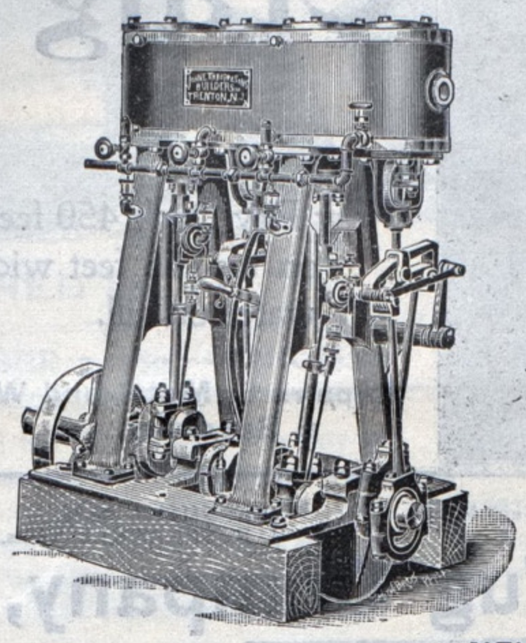

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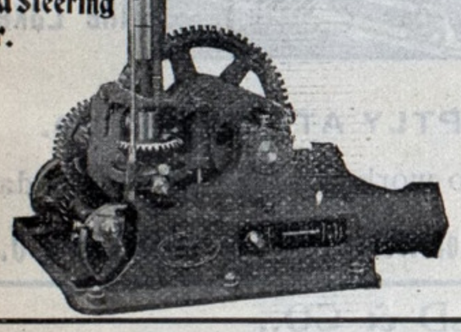

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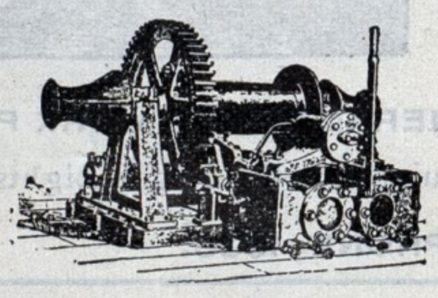

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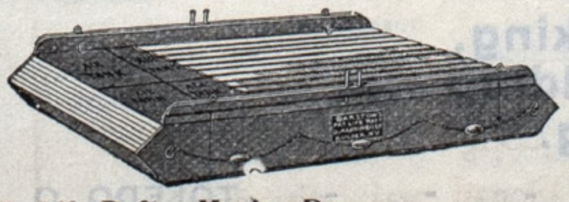

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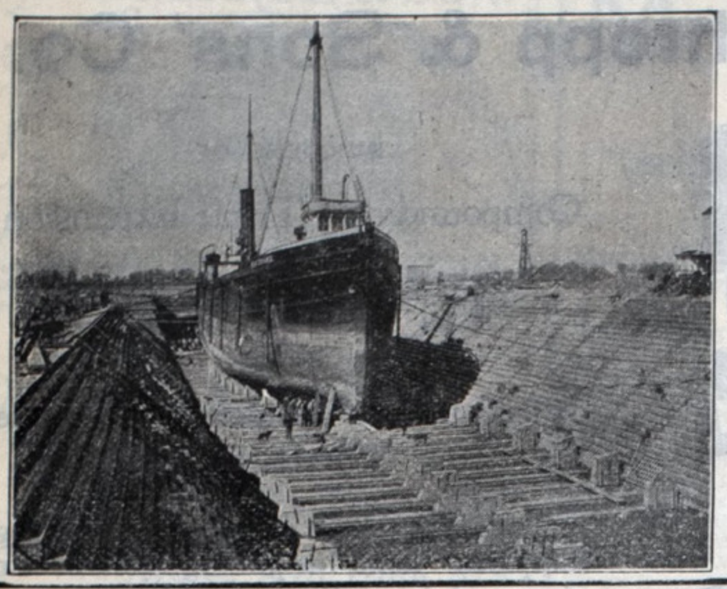

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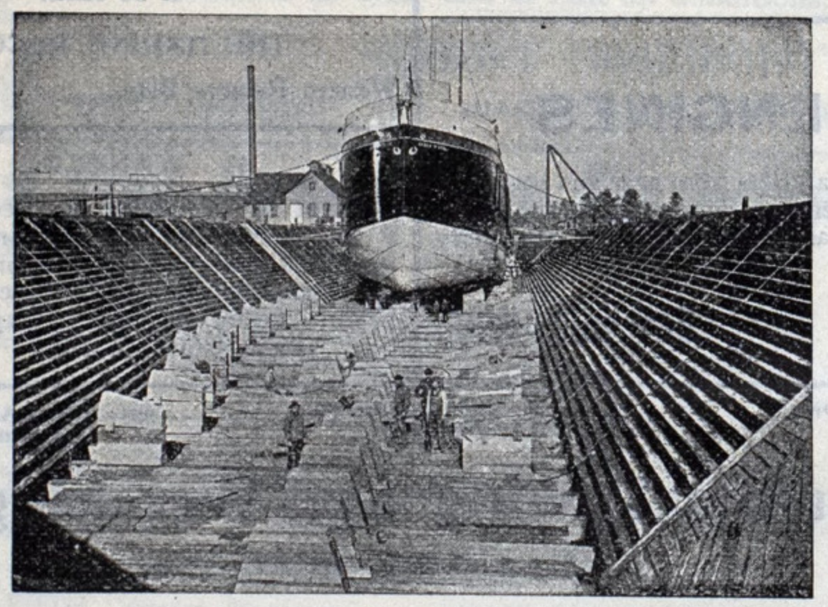

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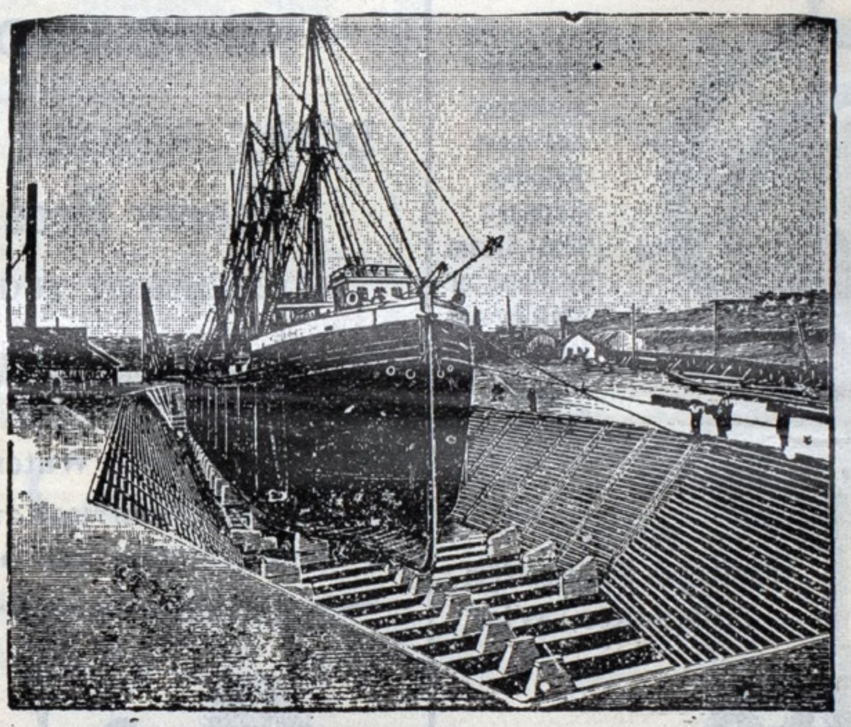

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